

AMENDMENTS TO THE CLAIMS

Claim 1. (Previously Presented) A targeted glycoconjugate comprising a bioactive agent and a targeting compound, wherein the targeting compound is a glycoprotein, glycolipid or carbohydrate, and wherein the bioactive agent and targeting compound are joined by a modified UDP galactose acetyl group (UDP-GalNAc), and wherein the modified UDP-GalNAc comprises a ketone group attached to the C2 position of the galactose ring.

Claim 2. (Previously Presented) The glycoconjugate of claim 1 wherein the bioactive agent comprises a polypeptide; releasing factor; releasing factor inhibitor; carbohydrate; nucleic acid; vaccine; anti-antibiotic; antiviral agent ; anti-fungal agent; analgesics; anesthetic; anti-helminthic; anti-arthritis agent; anti-asthmatic agent; anticonvulsant; antidepressant; anti-diabetic agent; anti-diarrheal; anticonvulsant; antihistamine; anti-inflammatory agent; toxin; anti- migraine preparation; anti-nauseant; anticancer agent; anti-parkinsonism drug; anti-psychotic; antipyretic; anti-spasmodic; anti- cholinergic; sympathomimetic; xanthine derivative; cardiovascular agent; anti-arrhythmic; anti-hyperlipidemi agent; anti-hypertensive; diuretic; anti-diuretic; receptor agonist; receptor antagonist; vasodilator; central nervous system stimulant; vasoconstrictor; cough and cold preparation; enzyme inhibitor; hormone; hypnotic agent; muscle relaxant; parasympatholytic; central nervous system stimulant; hypnotics, leukotrine inhibitor; mitotic inhibitor; genetic material; psychostimulant; sedative; anabolic agent; vitamin; herbal remedy; anti-metabolic agent ; anxiolytic; attention deficit disorder (ADD) drug; attention deficit hyperactivity disorder (ADHD) drug; neuroleptic agent; or tranquilizer.

Claim 3. (Cancelled)

Claim 4-42. (Cancelled)

Claim 43. (Original) A pharmaceutical composition comprising the glycoconjugate of claim 1 and a pharmaceutically acceptable carrier.

Claim 44. (Previously Presented) A kit comprising the glycoconjugate of claim 1 and instructions for use in a therapeutic or diagnostic method.

Claim 45. (Original) A glycoconjugate according to claim 1 for use in medical therapy.

Claims 46-48. (Cancelled)

Claim 49. (Previously Presented) A targeted glycoconjugate comprising a bioactive agent and a targeting compound, wherein the targeting compound is an antibody, and wherein the bioactive agent and targeting compound are joined by a modified UDP galactose acetyl group (UDP-GalNAc), and wherein the UDP-GalNAc comprises a reactive functional group attached to the C2 position of the galactose ring, wherein the reactive functional group is a ketone group.

Claim 50. (New) A targeted glycoconjugate comprising a bioactive agent and a targeting compound, produced by a process comprising the steps of:

(a) incubating a reaction mixture comprising a β (1, 4) - galactosyltransferase I variant with a targeting compound and a donor molecule comprising a modified UDP galactose acetyl group (UDP-GalNAc) so as to form a targeting-modified saccharide compound; and

(b) incubating the targeting-modified saccharide compound formed in (a) and a bioactive agent under conditions effective to generate a covalent bond between the modified saccharide and the bioactive agent,

wherein the galactosyltransferase I variant is selected from the group consisting of Y289L, Y289I, and Y289N, wherein the targeting compound is a glycoprotein, glycolipid or carbohydrate, wherein the bioactive agent and targeting compound are joined by a modified UDP-GalNAc, wherein the modified UDP-GalNAc comprises a ketone group attached to the C2 position of the galactose ring.

Claim 51. (New) A targeted glycoconjugate comprising a bioactive agent and a targeting compound, produced by a process comprising the steps of:

(a) incubating a reaction mixture of a donor molecule comprising a modified UDP galactose acetyl group (UDP-GalNAc) and a bioactive active agent under conditions effective to generate a covalent bond between the modified UDP-GalNAc and the bioactive agent; and

(b) incubating a reaction mixture comprising a β (1, 4) - galactosyltransferase I variant with the modified saccharide- bioactive agent compound formed in (a) with a targeting compound so as to form the glycoconjugate,

wherein the galactosyltransferase I variant is selected from the group consisting of Y289L, Y289I, and Y289N, wherein the targeting compound is a glycoprotein, glycolipid or carbohydrate, wherein the bioactive agent and targeting compound are joined by a modified UDP-GalNAc, wherein the modified UDP-GalNAc comprises a ketone group attached to the C2 position of the galactose ring.